

4. Troubleshooting

4.1. Checkpoints by Error Mode

4.1.1. First Checklist for Troubleshooting

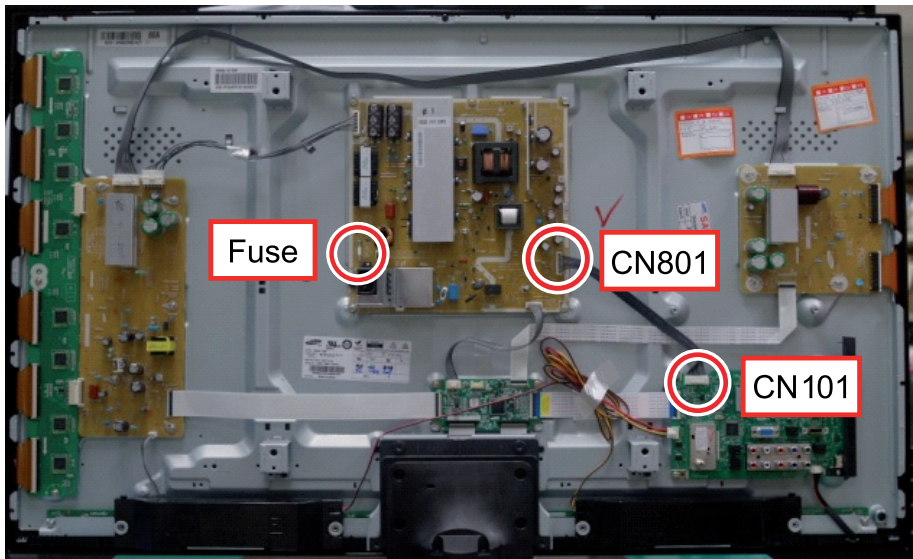
- 1) Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected or loose cable connection.
 - Check to see if the cables are connected according to the connection diagram.
- 2) Check the power input to the Main Board.
- 3) How to distinguish if the problem is caused by Main board or Logic Board.
 - No Video : If the problem is No Video but Logic Board is on and Indication LED is blinking repeatedly and faster than normal booting, replace the T-Con board.
 - Distorted Picture : Check the inner patterns.

Inner pattern	Picture	Problem
OK	NG	Main board
NG	NG	Main or LVDS cable or Logic Board or Panel

- How to check inner pattern?
 - a. Factory mode
 - b. Move to SVC menu.
 - c. Move to Test Pattern.
 - d. Check inner patterns.

4.1.2. Checkpoints by Error Mode

■ No Power

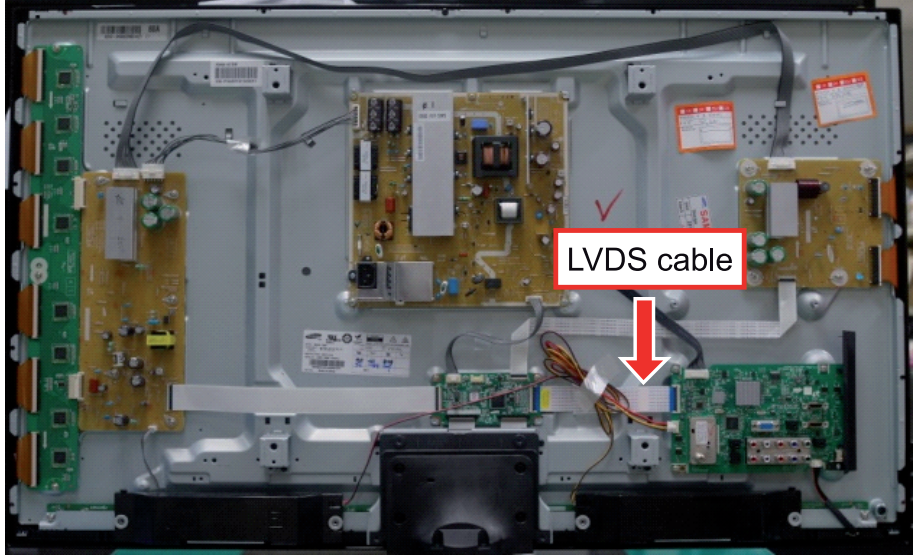
Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The unit appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltages of the SMPS. - Replace the Main Board.
Diagnostics	 <43" / 51" PDP> <pre> graph TD Q1[Power indicator LED is on?] -- No --> A1[Check AC power connection.] Q1 -- Yes --> Q2[Are the SMPS CN801 and Main CN101 connected?] Q2 -- No --> A2[Connect the cable between CN801 and CN101 connector.] Q2 -- Yes --> Q3[Is the Fuse(F801S) of the SMPS Power Input Part Open?] Q3 -- No --> A3[Replace Fuse. (F801S)] Q3 -- Yes --> Q4[SMPS CN801 PIN2 : STB5V PIN1_PS ON : Check to see if it is 0V?] Q4 -- No --> A4[Replace the SMPS.] Q4 -- Yes --> A5[Replace the Main Board.] </pre>



CAUTION

Make sure to disconnect the power before working on the SMPS board.

■ No Video

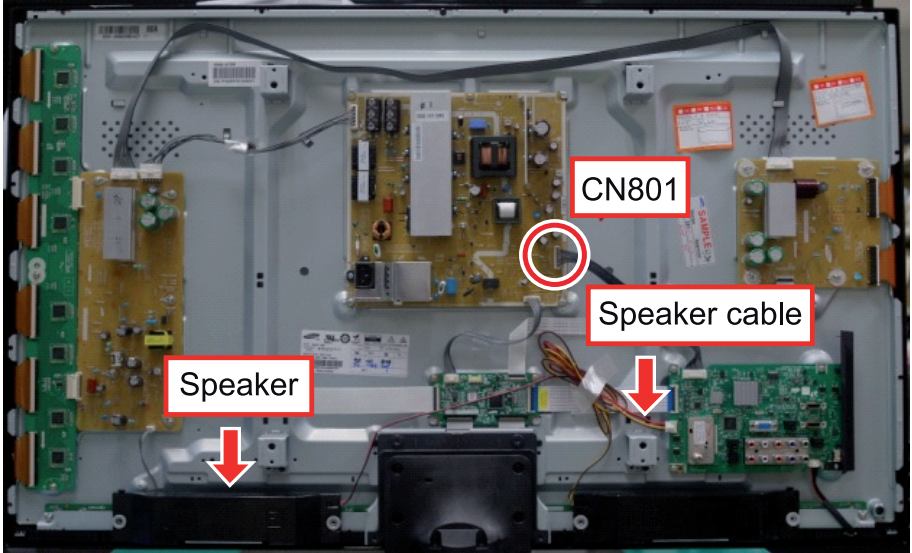
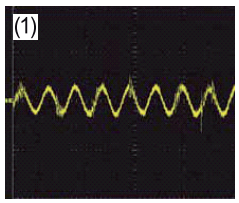
Symptom	Audio is normal but no picture is displayed on the screen.
Major Checklist	- The output voltage of the Main SMPS. - This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 <43" / 51" PDP> <pre> graph TD Q1[Check the LED operation of Logic Board which is normally operating? (Normal : Blink once a second)] -- No --> A1[Replace the Logic Board.] Q1 -- Yes --> Q2[Check the LVDS connector. Is it connected correctly?] Q2 -- No --> A2[Check / Replace the LVDS Cable.] Q2 -- Yes --> Q3[Check All output voltages on SMPS. Are all voltages normal?] Q3 -- No --> A3[Replace the SMPS.] Q3 -- Yes --> A4[Replace the Main Board.] </pre>



CAUTION

Make sure to disconnect the power before working on the SMPS board.

■ No Sound

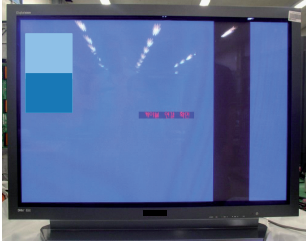
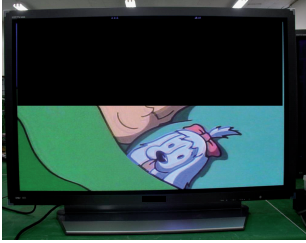
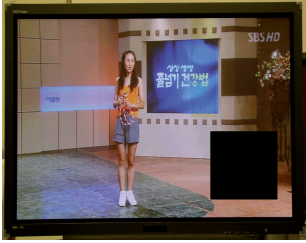
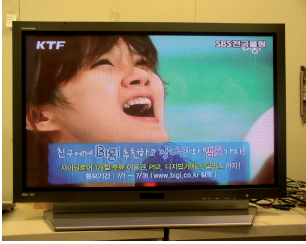
Symptom	Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is not functioning. - Speaker defect. - SMPS not supplying voltage to the main board.
Diagnostics	 <43" / 51" PDP> <pre> graph TD Q1[Is the cable connection between Main board and the speaker properly connected?] -- No --> A1[Connect the cable properly or replace the cable, if necessary.] Q1 -- Yes --> Q2[Is the output voltage of SMPS normal? (CN801 7pin : 15V)] Q2 -- No --> A2[Replace the SMPS.] Q2 -- Yes --> Q3["(1) Is the speaker output terminal of the Main board normal?"] Q3 -- No --> A3[Replace the Main board.] Q3 -- Yes --> A4[Replace the Speaker.] </pre> Sound Output Shape 



CAUTION

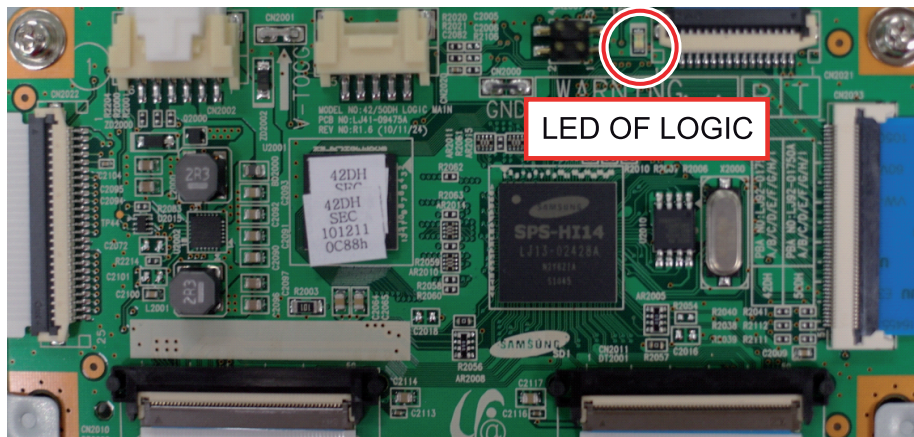
Make sure to disconnect the power before working on the IP board.

4.1.3. Faults and Corrective Actions

Symptom	Related Image	Causes and Countermeasures
A blank vertical cell (block) appears on the screen.		- Address buffer defect - Replace the corresponding upper/lower buffers. (E, F or G) - COF defect (burnt) - Replace the module.
A green screen appears when the TV is turned on.		- The Scale is not resetting. - Replace the Main board.
The OSD box appears but there is no text.		- Incorrect program version. - Check the version of each program. - Replace the Main board.
A blank upper (or lower) block appears on the screen.		- Upper/Lower Y Buffer defect - Replace the corresponding upper/ lower buffers.
Either the main or sub picture does not appear.		Replace the Main board.
A vertical green line appears on the screen.		- The SMPS voltage is incorrect. - Adjust the SMPS voltage according to the voltage printed on the module label.

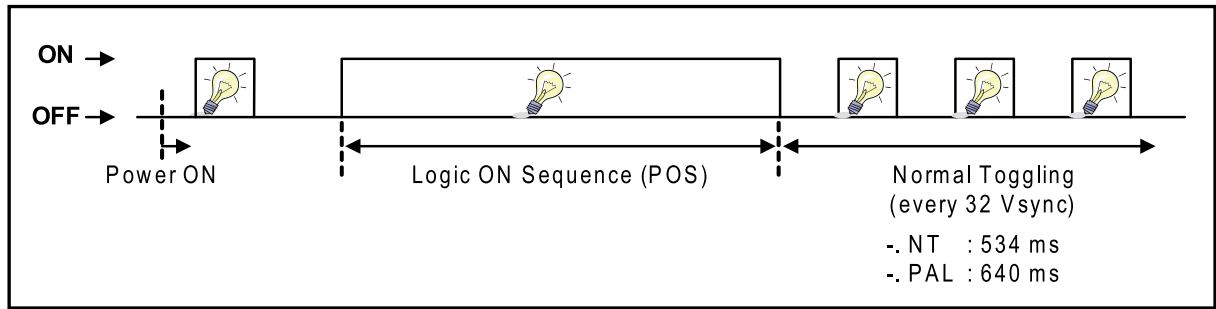
Symptom	Related Image	Causes and Countermeasures
Dim screen (blurred in red)		• X-Main board defect • Replace the X-Main board.
A blank screen appears.		• Replace the Y-Main board.

4.1.4. Operating Logic LED



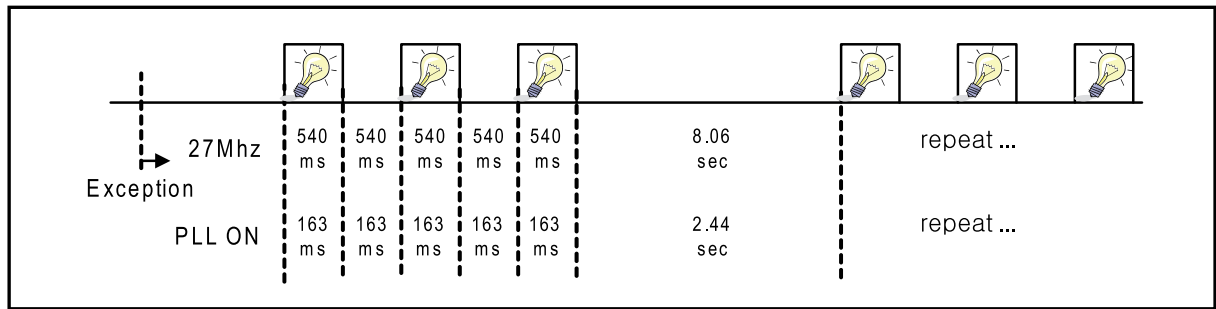
■ Normal

- LED ON/OFF for 0.5s



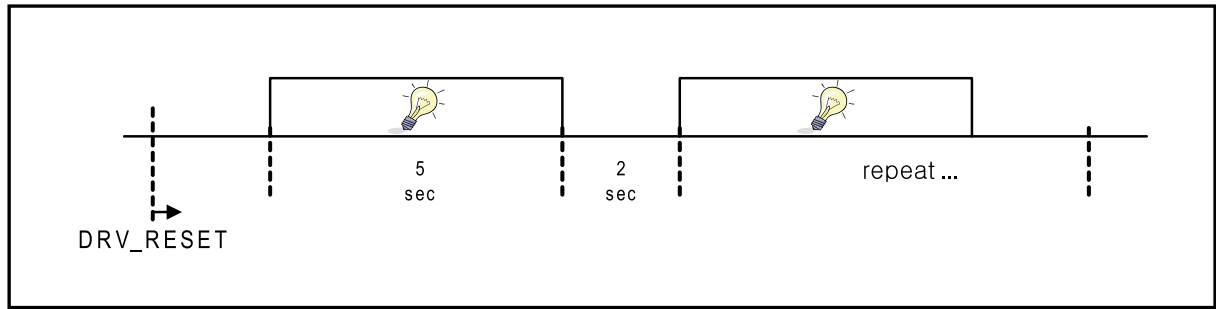
■ Abnormal

- LED ON/OFF three times for 8.1s



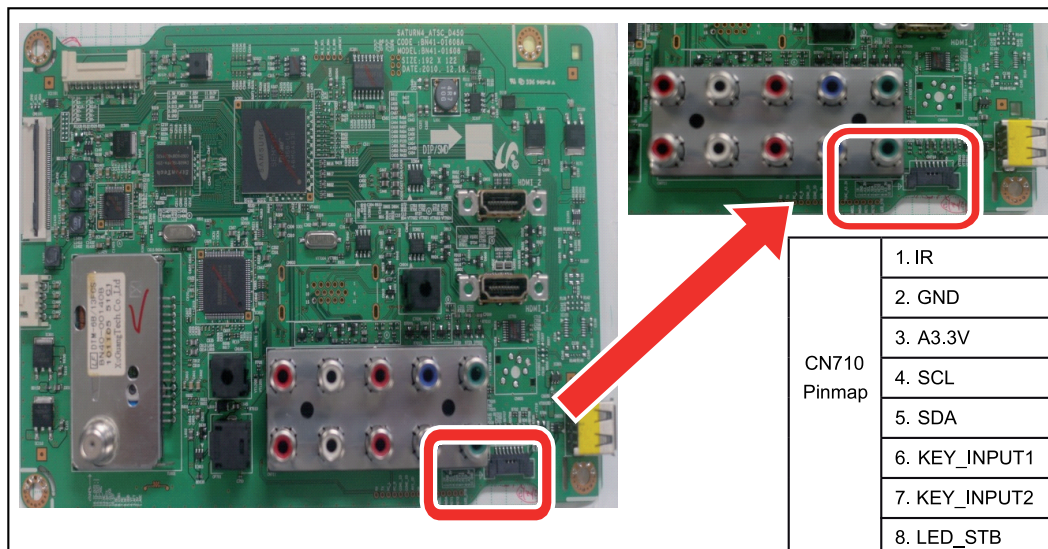
■ DRV_RESET

- LED ON for 5s and LED OFF for 2s

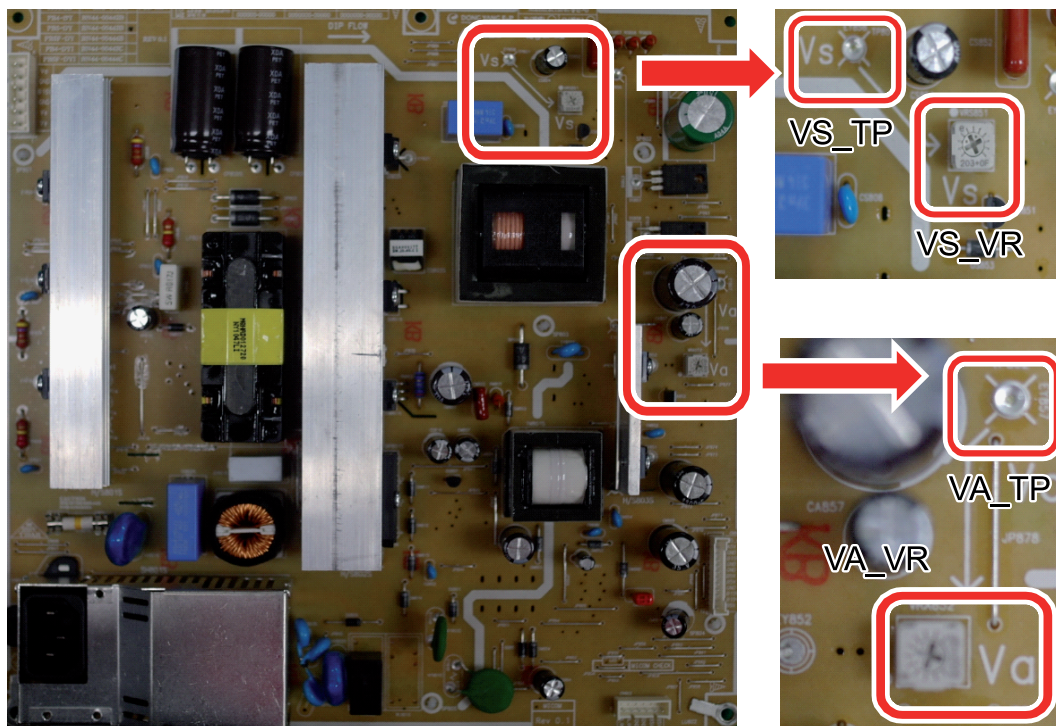


4.1.5. Function Assy Pin Map

■ US Main Board



4.1.6. Adjust SMPS Voltage when change SMPS



TIP

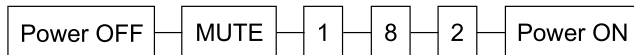
- T.P : Test Point
- V.R : Variable Resistor

4.2. Factory Mode Adjustments

4.2.1. Entering Factory Mode

To enter 'Service Mode' Press the remote-control keys in this sequence.

- If you do not have Factory remote-control.



- If you have Factory remote-control.



- If you don't have Factory remote control, can't control some menu.

Option
ADC/WB
Control
Advanced
Expert
SVC
T-STD4AUSHC-xxxx DTP-LP-0402-01 DTP-LP-App-0374-01 OPTION : xxxxx xxx ADC : HDMI O / COMP O / AV O EDID : SUCCESS HDCP : SUCCESS Current Flash : Flash O Build Data : 12-7-2010 Date Of Purchase : xx/xx/xx

4.2.2. Factory Data

■ Option

Item	Data	Range
Factory Reset	-	
Type	43DHHcD	43DHHcD/51DHHcD
Model	PD450	PD450
TUNER	Xugang	Xugang/SECCustom/ALPS
Audio Amp	TAS5715	TAS5715/NTP3200
Front Color	P-S-C-BK	P-S-C-BK ~ P-T-C-BK
Local Set	Other	
Exhibition Mode	Off	On/Off

■ ADC/WB

Menu	Item	Data	Range
ADC	AV Calibration	Success	Success/Failure
	Comp Calibraion	Success	Success/Failure
	PC Calibration	Success	Success/Failure
	HDMI Calibration	Success	Success/Failure
ADC Target	1st_AV_Low	18	0~255
	1st_AV_High	220	0~255
	1st_AV_Delta	1	0~255
	1st_Comp_Low	16	0~255
	1st_Comp_High	235	0~255
	1st_Comp_Delta	1	0~255
	1st_PC_Low	2	0~255
	1st_PC_High	235	0~255
	1st_PC_Delta	1	0~255
	2nd_Low	1	0~255
	2nd_High	235	0~255
	2nd_Delta	1	0~255
ADC Result	1st_AV_Gain	121	0~255
	1st_AV_Offset	140	0~255
	1st_Comp_Gain	73	0~255
	1st_Comp_Gain_Cb	73	0~255
	1st_Comp_Gain_Cr	73	0~255
	1st_Comp_Offset	128	0~255
	1st_Comp_Offset_Cb	127	0~255
	1st_Comp_Offset_Cr	127	0~255
	1st_PC_R_Gain	90	0~255
	1st_PC_G_Gain	92	0~255

Menu	Item	Data	Range
	1st_PC_B_Gain	93	0~255
	1st_PC_R_Offset	127	0~255
	1st_PC_G_Offset	127	0~255
	1st_PC_B_Offset	127	0~255
	2nd_R_Offset	109	0~255
	2nd_G_Offset	109	0~255
	2nd_B_Offset	109	0~255
	2nd_R_Gain	167	0~255
	2nd_G_Gain	167	0~255
	2nd_B_Gain	167	0~255
White Balance	Sub Brightness	128	
	R-Offset	128	
	G-Offset	128	
	B-Offset	128	
	Sub Contrast	128	
	R-Gain	128	
	G-Gain	128	
	B-Gain	128	
	Movie R-Offset	136	
	Movie B-Offset	88	
	Movie R-Gain	130	
	Movie B-Gain	83	

■ Control

Menu	Item		Data	Range
EDID	EDID ON/OFF		Off	On/Off
	EDID WRITE ALL		Successss	Success/Failure
	EDID WRITE PC		Successss	Success/Failure
	EDID WRITE DVI		Successss	Success/Failure
	EDID WRITE HDMI1		Successss	Success/Failure
	EDID WRITE HDMI2		Successss	Success/Failure
	EDID WRITE HDMI3		Failure	Success/Failure
	EDID WRITE HDMI4		Failure	Success/Failure
	EDID VERSION		HDMI 1.3	HDMI 1.3
Sub Option	Mute Time(VIDEO)		4	0~10
	ready		Failure	Success/Failure
	Hotplug		On	On/Off
	Hotplugcontrol		On	On/Off
	Spread Spectrum	Spread Spectrum	On	
		Period	60K	
		Amplitude	2	
		DDR Spread	2% Spread	
	Auto Power		On	On/Off
	Arab		Off	On/Off
	NT Conversion		Off	On/Off
	Mirror		Off	On/Off
	HDMI EQ1		Low	Low/Middle/High/Strong
	HDMI EQ2		Low	Low/Middle/High/Strong
	HDMI EQ3		Low	Low/Middle/High/Strong
	HDMI EQ4		Low	Low/Middle/High/Strong
	EER Count		3136	
	WM Calib			
	Panel Enter Key			
	Panel Display Time		0Hr	
	CHECKSUM		0x0000	
	View Log			
	Font Data Viewer			
	Dimm Type		INT	INT/EXT/INT_NEG/INT_POS
	Gamma		0.95	OFF/0.85/0.88/0.90/0.93/0.95
	Carrier Mute		On	On/Off
	Anynet+		On	On/Off
	HPD Polarity			
	High Devi		Off	On/Off
	Volume Curve		NT	NT/EU/EA

Menu	Item	Data	Range
	HotPlug Delay	9	0~63
	HP Ident	Low	Low/High
	PC Ident	On	On/Off
	Info Live		
	Watchdog	On	On/Off
	LVDS Format	VESA	JEDIA/VESA
	OSD Resolution	1024*768	
	Bus Stop		
	OTA Code		
	OTA Duration Test		
	Alternate Del		
	Ignore VCT Version	On	On/Off
	HDMI Sync	DE	
	Wiselink Movie	Off	
PDP Option	PIXEL SHIFT TEST	Off	On/Off
	LOGIC CONNECT	Off	On/Off
	PANEL VER	DH	
	PANEL INCH	43HD	
	PANEL TYPE	12H	
	PANEL TEMPERATURE	40	
	LOGIC ID	A202H	
	LOGIC SW VER	2010-11-01	
	LOGIC SW CHECKSUM	F1C1H	
	MRT	80	
	SAPC_TIMER	On	On/Off
	APC_SPEED	Slow	Slow/Fast
	LOGIC USB D/L	Off	
	PLG_SHOP	150	
Hotel Option	HOTEL MODE	Off	On/Off
	Power On Channel	3	
	Power On Band	Air	Air/STD/HRC/IRC
	Power On Source	ATV	TV/COMP/HDMI1/HDMI2
	Power On Volume	10	0~100
	Min Volume	0	0~100
	Max Volume	100	0~100
	Panel Button Lock	Off	On/Off/Power
	Pic Menu Lock	Off	On/Off
	Music Mode(AV)	Off	On/Off
	Music Mode(PC)	Off	On/Off
	Music Mode(Comp)	Off	On/Off

Menu	Item	Data	Range
	Music Mode Backlight	Off	On/Off
	Menu Display	On	On/Off
	Power On Opt	Last Option	Power on/last option/standby
	Ch Remap On/Off	Off	
	Program Ch	3	
	Original Ch/Src	3	
	Auto PC	Off	
	Energy Saving	Off	
	Clone:TVtoUSB		
	Clone:USBtoTV		
Shop Option	Shop Mode	Off	On/Off
	USB DEMO ON (SEC)		
	USB DEMO OFF (SEC)		
Sound	BD Mode		
	A2K Prescale	20	
	BTSC Mono Prescale	20	
	BTSC Stereo Prescale	20	
	SAP Prescale	20	
	BTSC M2S Threshold	0x80	
	BTSC S2M Threshold	0x70	
	BTSC Pilot NSR On Thr		
	BTSC Pilot NSR Off Thr		
	BTSC Stereo On Thr		
	BTSC Stereo Off Thr		
	SAP Amp On Thr		
	SAP Amp Off Thr		
	SAP NSR On Thr		
	SAP NSR Off Thr		
	Carrier Mute Amp On Thr		
	Carrier Mute Amp Off Thr		
	Carrier NSR On Thr		
	Carrier NSR Off Thr		
	Carrier Mute Thr High	0x39	
	Carrier Mute Thr Low	0x26	
	MP3 Level	6dB	
	Master Vol	16	
	PWM Modulation	104	
	DRC1 Threshold	0x35	
	DRC2 Threshold	0x23	
	SPEAKER EQ	On	

Menu	Item	Data	Range
	SC1 Vol	16	
	SC2 Vol	16	
	Audio Delay	20ms	
	SUB AMP Master Vol		
	SUB Amp PWM Mod		
	SUB DRC Thresh		
	SUB Speaker EQ		
	EQ Check Sum	0x95AC	
Config Option	Number of AV	1	
	Number of SVIDEO	0	
	Number of COMP	2	
	Number of HDMI	2	
	Number of SCART	0	
	DVI Sound	1	
	HeadPhone	0	
	Number of USB PORT		
	LNA SUPPORT	Off	
	MFT OFFSET		
Test Pattern	Mstar Test Pattern	Off	
	FBE Test Pattern	Off	
	LOGIC TEST Pattern	Off	

■ Advanced

Menu	Item	Data	Range
FBE			
WB Movie	MODE	Off	On/Off
	Color Mode	Movie	Dynamic/Standard/Movie
	Color Tone	Cool	Cool/Normal/Warm1/Warm2
	MSub Brigh	128	0~255
	Msub Contr	128	0~255
	W1_RGAIN	137	0~255
	W1_BGAIN	105	0~255
	W1_ROFFS	137	0~255
	W1_BOFFS	116	0~255
	W2_RGAIN	130	0~255
	W2_BGAIN	83	0~255
	W2_ROFFS	136	0~255
	W2_BOFFS	88	0~255
	W3_RGAIN	128	0~255
	W3_BGAIN	128	0~255

4. Troubleshooting

Menu	Item		Data	Range
	W3_ROFFS		128	0~255
	W3_BOFFS		128	0~255
	N_RGAIN		131	0~255
	N_BGAIN		116	0~255
	N_ROFFS		133	0~255
	N_BOFFS		130	0~255
	Movie Contr		100	0~255
	Movie Brigh		45	0~255
	Movie Color		55	0~255
	Movie Sharp		55	0~255
	Movie Tint		50	0~255
	Movie BkLight		10	0~255
	M.Gamma		Off	Off/0.85~M4
	M_Sub Gamma		0	-3~+3
EPA Standard	Std Contr		95	0~100
	Std Bright		45	0~100
	Std Sharp		50	0~100
	Std Color		50	0~100
	Std Tint		50	0~100
	Std Backlight		5	0~10
ADJUST	Dynamic Dimming		Off	On/Off
	LNA Plus	RF dB1 Level	4	
		RF dB2 Level	6	
		RF dB3 Level	10	
		RF dB4 Level	20	
	Power Key Protect		Off	On/Off
	Uart Select		Auto Wall	
	Debug Mode		Debug Off	
	Back End Mute			
	PDP FRC			
	VisualTest Plus		Disable	
	Standby Mode Time		45 Min	
	Delete alt.ver		2 Flash	
	OTA confirm Time		90 Min	2 Min/90 Min
	OTA limit Time		3 Hour	3 Min/3 Hour
	Dynamic CE		Off	On/Off
	FWC		Off	On/Off
	1080p 48Hz		Off	On/Off
	PWM Max		100	1~100
	Quick Start			

Menu	Item	Data	Range
	DTV LNA	Auto	
	HDCP Download	Off	
	USB Download	Off	
YC_Delay	PAL BG	1	
	PAL DK	1	
	PAL I	1	
	SECAM BG	4	
	SECAM DK	4	
	SECAM L	4	
	NTSC 358	1	
	NTSC 443	1	
	AV PAL	1	
	AV SECAM	4	
	AV NT358	1	
	AV NT443	1	
	AV PAL60	1	
Sharpness	H1 Gain	0x12	
	H2 Gain	0x0C	
	H3 Gain	0x07	
	H4 Gain	0x07	
	V1 Gain	0x13	
	V2 Gain	0x08	
	H overshoot	0x20	
	V overshoot	0x20	
	H undershoot	0x20	
	V undershoot	0x20	
	Coring TH2	0x01	
	Coring TH1	0x01	
PE	Skin_x	0x01	
	Skin_y	0x00	
	B_slope	0x88	
	DLC_ML	0x80	
	DLC_MH	0x80	
	DLC_H	0xEB	
	Skin_SAT	0x05	
	Skin_HUE	0x40	
	M_Skin_HUE	0x40	
	M_Skin_X	0x00	
	M_Skin_Y	0x01	
	Mid_color_level	0xBC	

4. Troubleshooting

Menu	Item	Data	Range
	M_mid_color_level	0x7A	
FRC			
PQ Others	7.5 IRE NTSC	Off	
	7.5 IRE OFFSET	16	
Color Space	Red Sat	0x12	
	Red Hue	0x40	
	Green Sat	0x1A	
	Green Hue	0x60	
	Blue Sat	0x1A	
	Blue Hue	0x60	
	Cyan Sat	0x13	
	Cyan Hue	0x40	
	Magenta Sat	0x16	
	Magenta Hue	0x40	
	Yellow Sat	0x10	
	Yellow Hue	0x40	
	FWC Blue	0x0F	
	FWC Red	0x0F	
EEPROM RESET	EEPROM RESET	Off	
	NVR All Clear	Off	

■ SVC

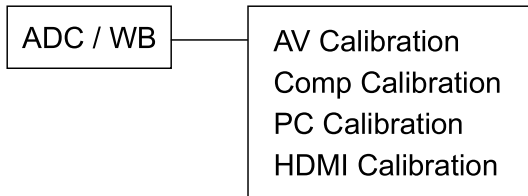
Menu	Item	Data	Range
Mode		DYNAMIC	
SCC ON/OFF		Off	
SCC Input Data	Hx	272	
	Hy	278	
	Lx	272	
	Ly	278	
sSCC Const	sSCC Hx	550	
	sSCC Hy	543	
	sSCC Lx	533	
	sSCC Ly	584	
pSCC Const	pSCC Hx	555	
	pSCC Hy	540	
	pSCC Lx	531	
	pSCC Ly	574	
SCC Source Data		PBA	
SWAP		PBA	
Panel Auto Setting		Failure	

4.3. Service Adjustment

- You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

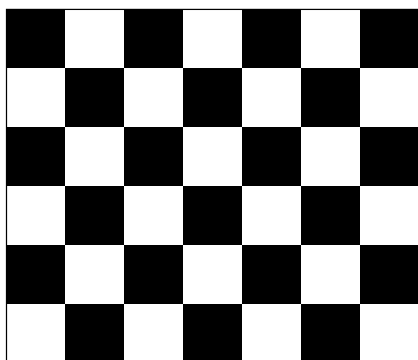
■ White Balance - Calibration

- Factory



■ Color Calibration

- Adjust spec.
 - 1) Source : HDMI
 - 2) Setting Mode : 1280*720@60Hz
 - 3) Pattern : Pattern #24 (Chess Pattern)



- 4) Use Equipment : CA210 & Master MSPG925 Generator

Use other equipment only after comparing The result with that of The Master equipment.

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC/PAL B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

- **Method of Color Calibration (AV)**

- 1) Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port.
- 2) Press the Source key to switch to “AV1” mode.
- 3) Enter Service mode.
- 4) Select the “ADC” menu.
- 5) Select the “AV Calibration” menu.
- 6) In “AV Calibration Off” status, press the “▶” key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the “AV Calibration” status from Failure to Success.

- **Method of Color Calibration (Component)**

- 1) Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port.
- 2) Press the Source key to switch to “Component1” mode.
- 3) Enter Service mode.
- 4) Select the “ADC” menu.
- 5) Select the “Comp Calibration” menu.
- 6) In “Comp Calibration Off” status, press the “▶” key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the “Comp Calibration” status from Failure to Success.

- **Method of Color Calibration (HDMI)**

- 1) Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port.
- 2) Press the Source key to switch to “HDMI1” mode.
- 3) Enter Service mode.
- 4) Select the “ADC” menu.
- 5) Select the “HDMI Calibration” menu.
- 6) In “HDMI Calibration Off” status, press the “▶” key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the “HDMI Calibration” status from Failure to Success.

■ White Balance - Adjustment

Factory	(Low light)	(High light)
ADC / WB - White Balance	Sub Bright R offset G offset B offset	Sub Contrast R gain G gain B gain

4.4. Software Upgrade

Samsung may offer upgrades for the TV's firmware in the future.

These upgrades can be performed via the TV.

Upgrades will be possible by connecting a USB drive to the USB port.

- When software is upgraded, video and audio settings you have made will return to their default (factory) settings.
- We recommend you write down your settings so that you can easily reset them after the upgrade.

